



State of Utah
DEPARTMENT OF NATURAL RESOURCES
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October 2, 1996

Mr. Pat Gochnour
Gochnour & Associates
P.O. Box 3207
Englewood, Colorado 80155

Re: Clarification of Minerals Rules - Regraded Slope Angles, Summo USA Corp. (Summo), Lisbon Valley Copper Project, M/037/088, San Juan County, Utah

Dear Mr. Gochnour:

This letter is intended to clarify and answer your question regarding the portion of the Minerals Rules dealing specifically with final reclamation slope angles. Section R647-4-111.6 of the Minerals Rules states: "*Slopes - Waste piles, spoil piles and fills shall be regraded to a stable configuration and shall be sloped to minimize safety hazards and erosion while providing for successful revegetation.*" The lack of a specified slope angle allows varying interpretations of what a stable slope configuration is. In general, the Division's preferred angle for regraded slopes is 3 horizontal: 1 vertical. This slope angle is usually more conducive to successful revegetation than steeper slopes. The 3H:1V configuration is also readily accessible to heavy equipment operating along the contour. Normally, it is difficult to safely operate heavy equipment on slopes steeper than 2.5H:1V.

The Division has allowed regraded slopes to be left at angles steeper than 3:1 provided there is adequate justification for this steeper angle. The Division would consider allowing a regraded slope to remain at angles steeper than 3H:1V if adequate justification can be provided supporting such an angle. Information to support a steeper slope angle would include: a description of the slope(s) in question (vertical height, slope length), composition of the materials making up the slope (rock type, particle size, proportion of particle sizes), any unusual site specific circumstances prohibiting/limiting the operators ability to regrade to a 3H:1V angle, and the reclamation techniques proposed to achieve successful revegetation. In addition, the overall impacts of the different slope configurations would also be a consideration.

Please be advised, that the reclamation requirements of the land owner or land managing agency may also influence or override the Division's reclamation requirements. Please contact me or Wayne Hedberg if you require additional information in this regard.

Sincerely,

for Anthony A. Gallegos
Senior Reclamation Specialist

jb
cc: Dennis Fredericks, DWQ
Lynn Jackson, BLM
Will Stokes, SITLA

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